## REMARKS

Some arguments are provided to overcome the Examiner's "Response to Arguments" which considers applicant's arguments filed on 29 August 2002 to be non-persuasive. Herein, the arguments are directly incorporated into the arguments for traversing the rejection under 35 U.S.C. 103 (a).

Both the pending claims and specification are not amended.

Therefore, no new matter or new issues are raised.

## CLAIMS REJECTIONS – 35 U.S.C. SECTION 103(a)

The Examiner rejected Claims 1-20 under 35 U.S.C. 103(a) as being unpatentable over Boyington et al. (Hereinafter Boyington) (U.S. 6,377,897), Chien et al. (Hereinafter Chen) (IEEE TRANSACTYIONS ON SEMICONDUCTOR MANUFACTURE MANUFACTURING VOL. 9 NO. 3 AUGUSE 1996 pp. 461-467) and Matsuoka (U.S. 5,204,616),

Applicant respectfully traverses this rejection.

Initially, applicant emphasizes that the purpose of the invention is to overcome the following conventional disadvantages: (1) The difference between the experimental value and the theoretical value cannot be found by the used formula. (2) The best burn-in time only can be acquired by experience or formula, i.e. it cannot be acquired by the relation between the best burn-in time and the corresponding risk. (3) The reliability of produced integrated circuits cannot be promised by

ensuring the estimated value is almost the best value in accordance with the comparison between the experimental value and the theoretical value. Please refer to of the following parts of the original specification: page 3 lines 17-26, page 4 lines 11-41, page 6 lines 12-18, page 7 line 27 to page 8 line 6, page 8 lines 12-16 and lines 22-26, and page 10 line 3 to page 11 line 11.

Sequentially, applicant excerpts the essential scope of the claims as the following (Herein, only claims 1, 12 and 19 are independent claims):

(a) Perform a life-time testing process (or called as a stress test) to acquire the life distribution of the tested samples. Please refer to lines 4-6 of claim 1 (life-time testing process), lines 4-6 of claim 12 (life-time testing process) and lines 4-5 of claim 19 (life-time testing process)

(b) Perform the "trial and approach" procedure (or called as try and error) to acquire a stimulated curve, such as the test time function, where the difference between the stimulated curve and the life distributed is minimized. Please refer to lines 11-12 of claim 1, claims 9-10, lines 13-14 of claim 12, claims 16-17, and liens 12-014 of claim 19. Herein, it is well known that the "trial and approach" procedure is used to minimize the difference between the data and the simultaneous results.

(c) Transforms the results acquired under a testing environment into a real time life distribution by using the acceleration factor function acquired from the life-time testing process.

Please refer to lines 5-10 and 13-16 of claims 1, lines 6-13 of claim 12 and lines 7-11 and 21-25 of claim 19.

(d) Determine a best Burn-in time by using the real time life distribution, and further calculate information such as the reliability of the test samples.

Please refer to lines 13-20 of claim 1, lines 14-21 of claim 12 and lines 25-30 of claim 19.

(e) No formula or predetermined database is used to acquire the failure rate and the best burn-in time. At most, the stored experimental data are used to determine the period of the stress test.

Please note that no formula and no predetermined database is cited in all pending claims. Herein, how to determine the period of the life-time testing process is not limited. However, the claims of Boyington also do not limits the details. Then, it is reasonable to consider that the determination of the period is trivial for one of ordinary skill.

(f) Only perform the life-time testing process during a specific period, which means the life-time testing process is only

performed once in the invention. After the life-time testing process is performed, the simulated curve is acquired by the measured results of the life-time testing process.

Please note that no claim discloses the step of repeatedly performing the life-time testing process more than one time. In fact, no claim discloses a standard for determining whether to repeatedly perform the life-time testing process.

(g) The calculation of the real tine function (a result acquired from the simulated curve and the acceleration factor function) at least is calculated for both the infant mortality period and the normal life period. Hence, the best burn-in time could be acquired, and some information, such as the reliability of the sold products and the average lifetime of the sold product, could also be acquired.

Please refer to lines 15-20 of claim 1, claim 11, lines 15-21 of claim 12, claim 18, lines 24-29 of claim 19 and claim 20.

Therefore, it is indisputable that the pending claims really have the previous limitations, such as performing the life-time testing process only once, calculating results such as reliability, applying the acceleration factor function to translate between the testing time and the real time, applying the "trial and approach" procedure (between different time scales) and transforming by using the acceleration factor function. Besides, while the results during both the infant mortality

period and normal life period are acquired by the invention, it is implied that the pending claims are related to cost and mean residual live because the quality of products during the normal life period is important for the contemporary industry.

**Accordingly, applicant's arguments filed on 20 August 2002 are really found in the claims.**

Furthermore, by carefully analyzing Boyington, applicant essentially summarizes Boyington's invention as the following.

(a) Acquire the core time by the historical data. (the historical data could be acquired by performing experiments).

(b) Perform the stress test (corresponding to the life-time testing process of the claimed invention) during a period which is equal to the core time, which means performing the stress test from "time = 0" to "time = core time".

(c) Analysis of the measured data acquired by the stress test.

(d) Decide whether the slope of the function of both failure rate and time is smaller than a predetermined value during the period of the stress test.

(e) If the answer of (d) is negative, perform (a)-(c) again, which means performing the stress test form "time = core time" to "time = 2 multiplies core time"; and

If the answer of (d) is positive, use the specific time, where the slope is just smaller than the predetermined value, to be the best burn-in time.

Herein, please at least refer to the following parts of Boyington: FIG. 2, col. 3 lines16-54, and col. 3 line 61 to col. 4 line 29.

Moreover, col. 3 lines 19-22 of Boyington clearly express that "In general, the method starts with determining a core time. From historical data of similar ICs, a core time is calculated, which is the time of stress that is to be applied to all ICs in the batch." Indisputably, Boyington considers his "core time" as the period that ICs are tested in the batch. Hence, Boyington's "core time" corresponds to the testing time of the testing environment. Besides, col.3 lines 43-44 of Boyington further express "the core period (i.e. the minimum burn-in time)", and then the core period (or core time) is directly corresponding to the burn-in time again. Further, FIG. 2 of Boyington shows that the core is acquired in the "DETERMINE CORE AND INITIA READ POINTS, 215" only after "ICS INSERTED INTO BURN-IN . BOARDS, 205" and "BOARDS IN OVENS, 210". Clearly the core time is acquired directly from burn-in (the testing environment) and is independent on the normal operating environment.

**Therefore, the Examiner's viewpoint that Boyington's "core time" is the real time of a normal operating environment is wrong. The Examiner misunderstands Boyington.**

**Further, because Boyington only uses the testing time (for example, Fig. 2 of Boyington never shows any step of transforming between different time scales), the Examiner's viewpoint that Boyington teaches using the historical data to generate a core**

**time (which means an acceleration factor function) is wrong. The Examiner misunderstands Boyington.**

Further, regarding Chien, applicant agrees that Chien really presents a simulation method that eliminates the burn-in time without the usage of parameter(s). However, applicant also finds that Chien has the following characteristics:

(a) Chien only considers how to perform the stimulation by using the time-dependent data. In fact, Chien never considers the transformation between the testing time and the real time.

(b) Chien never uses the acceleration factor function.

Herein, please at least refer to the following parts of Chien: FIG. 1, page 462 (A. U-shape Failure Rate Function), page 466 (V. Examples), and partial pages 463-466 (B. Simulation and D Optimal Burn-In time).

Regarding Matsuoka, applicant does not argue the Examiner's viewpoints about Matsuoka.

Accordingly, by carefully comparing the invention with Boyington, applicant reasonably finds the following important differences:

(a) The invention only performs the stress test (the life-time testing process) once during a specific period. In fact, even if the measured data are insufficient, the invention still solves the problem by other methods. Please refer to page 11 lines 13-19 and page 12 lines 20-23. In contrast, Boyington may perform the stress test several times

until the specific time that the slope is smaller than a predetermined value. Clearly, the time that the stress test is performed is a strong difference. Moreover, the total periods that the stress test is performed by Boyington must not be smaller than the best burn-in time. In contrast, the invention allows that the period of the performed stress test is smaller than the best burn-in time. Herein, the difference could be easily found from the pending claims since no loop action is described.

(b) The invention calculates the best burn-in time and further calculates the results, such as reliability, in both the infant mortality period and the normal life period. In contrast, Boyington only calculates the best burn-in time and does nothing about the results in the normal life period. Thus, by referring to Boyington, there is no motivation to study the results in the normal period. Clearly, Boyington is only related to part of the invention.

(c) The invention uses the acceleration factor function to transform between the testing time and the real time. Boyington only uses one time scale (the testing time) and never discloses anything about the transformation between difference time scales. Clearly, Boyington says nothing about this part of the invention.

(d) The invention is related to both "cost" and "mean residual live". Boyington never discloses anything about these subjects. Clearly, Boyington is only related to part of the invention.

(e) The invention uses a simulated curve to fit the measured data of the performed stress test, and limits the differences between the simulated curve and the measured data. Boyington directly uses the measured data to find the slopes without any simulation, and no minimizing difference process is preformed. Clearly, Boyington is only related to part of the invention.

According to the previous paragraphs (a)-(e), applicant emphasizes that the differences between the pending claims and Boyington are more than what the Examiner considered.

Furthermore, applicant emphasizes that the Examiner's viewpoint about Chien is incorrect. For example, Chien never discloses the item "acceleration factor function" (the term is not found in Chien). Hence, because the Examiner only uses Matsuoka to reject claims 19-20, the differences between claims 1-18 and Boyington are more than what Chien discloses.

Besides, applicant emphasizes that the scope of claims 19-20 is the combination of the optimizing process and the scope of claims 1-18, which could be easily found by comparing claims 19-20 with claims 1-18. Hence, since Matsuoka is related to a monitored burn-in system and says nothing about the details of the optimizing process, claims 19-20 are strongly different from the combination of Boyington, Chien and Matsuoka.

In short, according to the previous discussions, Applicant emphasizes that the pending Claims 1-20, which are a rewritten

version of the original claims 1-20 to overcome some formal objections and some formal rejections, are not properly rejected under 35 U.S.C. 103(a).

In summary, reconsideration and withdrawal of the Examiner's rejection under 35 U.S.C. 103(a) is respectfully requested.

## CONCLUSION

In light of the above amendments and remarks, Applicant respectfully submits that all pending Claims as currently presented are in condition for allowance. Accordingly, reconsideration of the present application and withdrawal of the rejections is respectfully requested.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

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